

IN THE CLAIMS

1. (Previously Presented) A method for preventing plaque build-up in a coronary artery, comprising:

providing an electrical field generating device, wherein providing the electrical field generating device includes providing an implant in a patient's body, providing a lead within a patient's body adjacent the coronary artery and connected to the implant; and

generating an electrical field, from the lead based on a signal from the implant, in the coronary artery to prevent plaque build-up in the coronary artery, and wherein generating the electrical field includes outputting a non-excitatory electrical field in association with an atrial or ventricular depolarization such that the electrical field does not interfere with the heart rhythm.

2. (Previously Presented) The method according to claim 1, wherein the lead includes an electrode patch, and providing the lead includes positioning the electrode patch epicardially on a heart adjacent to the coronary artery.

3. (Previously Presented) The method according to claim 1, wherein providing the lead includes positioning the lead into a vein adjacent the coronary artery, and generating the electric field includes producing an electric field of sufficient strength to pass through walls of the vein and the coronary artery to prevent plaque from adhering to the wall of the coronary artery.

4. (Previously Presented) The method according to claim 1, wherein providing the implant includes sensing a heart rhythm of the patient's heart.

5. (Original) The method according to claim 4, wherein generating the electrical field includes generating the field after heart depolarization.

6. (Original) The method according to claim 5, wherein generating the electric field includes periodically producing the electric field and spacing the electrical fields about 10 seconds apart.

7. (Previously Presented) The method according to claim 1, wherein providing a lead includes connecting the implant to at least two electrodes on the lead such that the electrical field is generated between the at least two electrodes.

8. (Previously Presented) The method according to claim 1, wherein providing a lead includes connecting the implant to at least two leads each having one electrode, and spacing the two electrodes apart from each other such that the electrical field generated between the two electrodes reduces plaque build-up in the coronary artery.

9. (Previously Presented) A method for preventing plaque build-up in a coronary artery, comprising:

providing an electrical field generating device, wherein providing the electrical field generating device includes inserting an implant in a patient's body, connecting the implant to a lead, and extending the lead within the patient's body adjacent the coronary artery; and

generating an electrical field in the coronary artery to prevent plaque build-up in the coronary artery, wherein generating the electrical field includes generating the electrical field during a refractory period at a higher strength and generating the electrical field during a non-refractory period at a lower strength.

10. (Previously Presented) An apparatus for preventing plaque build-up in a coronary artery, comprising:

a heart rhythm sensing unit;

an implantable electrical field generating device connected to the heart rhythm sensing unit, the electrical field generating device produces an electrical field in association with an atrial or ventricular depolarization that does not interfere with the heart rhythm; and

a lead unit connected to the electrical field generating device, the lead unit producing the electrical field adjacent the coronary artery to reduce plaque build-up in the coronary artery.

11. (Previously Presented) The apparatus according to claim 10, wherein the electrical field generating device includes a hermetically sealed housing, a power source within the housing, and electrical field generating circuitry connecting the power source to the lead unit.

12. (Original) The apparatus according to claim 10, wherein the lead unit includes an electrode patch positioned epicardially on the heart.

13. (Previously Presented) The apparatus according to claim 10, wherein the lead unit is an intracardial lead and is adaptable to be positioned in a vein adjacent the coronary artery.

14. (Previously Presented) The apparatus according to claim 10, wherein the lead unit includes two leads each having an electrode thereon, the electrodes being adaptable to be spaced from one another in a body with the coronary artery therebetween, and the lead unit flowing current between the two leads to create the electrical field in the coronary artery and prevent plaque build-up in the coronary artery.

15. (Previously Presented) An apparatus for preventing plaque build-up in a coronary artery, comprising:

a heart rhythm sensing unit;

an electrical field generating device connected to the heart rhythm sensing unit, the electrical field generating device produces an electrical field that does not interfere with the heart rhythm; and

a lead unit connected to the electrical field generating device, the lead unit producing the electrical field adjacent the coronary artery to reduce plaque build-up in the coronary artery,

wherein the lead unit includes two leads each having an electrode thereon, the electrodes being adaptable to be spaced from one another in a body with the coronary artery therebetween, and the lead unit flowing current between the two leads to create the electrical field in the coronary artery and prevent plaque build-up in the coronary artery,

wherein one of the two leads is adaptable to be positioned in an anterior vein and a second of the two leads is adaptable to be positioned in a lateral vein, and the electrical field is a non-heart-excitatory signal passing through a left marginal artery and an anterior interventricular artery.

16. (Original) The apparatus according to claim 10, wherein the electrical field generating device produces an electrical field less than is needed to capture the cardiac tissue.

17. (Original) The apparatus according to claim 16, wherein the electrical field generating device produces an electrical field less than every 10 seconds.

18. (Original) The apparatus according to claim 10, wherein the electrical field generating device produces an electrical field after a depolarization wave in the heart.

19. (Original) The apparatus according to claim 10, wherein the electrical field generating device includes a controller and therapy circuits for providing heart rhythm management signals to a heart.

20. (Previously Presented) The apparatus according to claim 10, wherein the electrical field generating device produces an electrical field during a refractory period of the heart rhythm.

21. (Withdrawn) An apparatus for preventing plaque build-up in a coronary artery, comprising:

    a heart rhythm sensing unit;

    an implantable, electrical field generating device connected to the heart rhythm sensing unit, the electrical field generating device produces a signal having a first strength during a refractory period and a second strength during a non-refractory period; and

    a lead unit connected to the electrical field generating device, the lead unit being adapted to produce an electrical field adjacent the coronary artery to reduce plaque build-up in the coronary artery based on the signal.

22. (Withdrawn) The apparatus of claim 21, wherein the lead unit includes a first lead and a second lead, the first lead is adapted to be positioned in an anterior vein and the second lead is adapted to be positioned in a lateral vein.

23. (Withdrawn) The apparatus of claim 22, wherein the electrical field is a non-heart-excitatory signal passing through a left marginal artery and an anterior interventrical artery.

24. (Withdrawn) An apparatus for preventing plaque build-up in a coronary artery, comprising:  
a electrical signal generating device; and

a lead unit connected to the electrical signal generating device, the lead unit includes a first electrode adapted to be positioned in a lateral vein and a second electrode adapted to be positioned in an anterior vein, the first and second electrodes being adapted to produce a non-heart-excitatory signal electrical field in the coronary artery to prevent plaque build-up in the coronary artery.

25. (Withdrawn) The apparatus of claim 24, wherein the electrical signal generating device includes a heart rhythm sensing unit.